

## PATENT COOPERATION TREATY

## PCT

Isenbruck | Bösl | Hörschler |  
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 Postfach 860 860  
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21. Okt. 2004

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Frist:

Vorfrist:

WV:

Applicant's or agent's file reference <b>C62115PC</b>	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. <b>PCT/EP2004/005762</b>	International filing date (day/month/year) <b>27/05/2004</b>	(Earliest) Priority Date (day/month/year) <b>27/05/2003</b>
Applicant <b>CYTOS BIOTECHNOLOGY AG</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 8 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☒ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☒ Unity of invention is lacking (see Box III).

## 4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

**MODIFIED POLYPEPTIDES FOR TARGETING CELL-ENTRY OF THE ADENOVIRUSES OF SUBTYPE B**

## 5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

## 6. With regards to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☒ none of the figures is to be published with the abstract.

# INTERNATIONAL SEARCH REPORT

International application No.

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Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
  - a. type of material
    - ☒ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material
    - ☒ in written format
    - ☒ in computer readable form
  - c. time of filing/furnishing
    - ☒ contained in the international application as filed
    - ☒ filed together with the international application in computer readable form
    - ☐ furnished subsequently to this Authority for the purpose of search
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

# INTERNATIONAL SEARCH REPORT

International Application No  
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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/86 C12N15/62 C07K19/00 C07K16/28 C07K16/46  
C07K14/705 A61K38/17 A61K35/76

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, MEDLINE, BIOSIS, WPI Data, PAJ, Sequence Search

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>CHRISTIANSEN D ET AL: "Octamerization enables soluble CD46 receptor to neutralize measles virus in vitro and in vivo"</p> <p>JOURNAL OF VIROLOGY, THE AMERICAN SOCIETY FOR MICROBIOLOGY, US, vol. 74, no. 10, May 2000 (2000-05), pages 4672-4678, XP002231126</p> <p>ISSN: 0022-538X</p> <p>abstract</p> <p>page 4673, left-hand column, paragraph 2</p> <p>page 4675, left-hand column, paragraph 2 -</p> <p>page 4676, left-hand column, paragraph 3</p> <p>-----</p> <p>-/--</p>	<p>26-32,</p> <p>34-41,</p> <p>43-51</p>

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

- 'A' document defining the general state of the art which is not considered to be of particular relevance
- 'E' earlier document but published on or after the international filing date
- 'L' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- 'O' document referring to an oral disclosure, use, exhibition or other means
- 'P' document published prior to the international filing date but later than the priority date claimed

- 'T' later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- 'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- 'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- '&' document member of the same patent family

Date of the actual completion of the international search

4 October 2004

Date of mailing of the international search report

18/10/2004

Name and mailing address of the ISA

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Authorized officer

Madruga, J

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP2004/005762

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 060 316 A (SNITKOVSKY SOPHIE ET AL) 9 May 2000 (2000-05-09) claims; figure 1 column 1, lines 41-60 column 4, line 9 - line 18 column 7, line 20 - column 8, line 9; claims -----	26-51
X	US 6 524 572 B1 (LI YIBING) 25 February 2003 (2003-02-25) claims; figure 1 column 2, line 64 - line 67 column 5, line 20 - line 40 column 9, line 10 - line 43 -----	26-51
P,X	SEGERMAN ANNA ET AL: "Adenovirus type 11 uses CD46 as a cellular receptor." JOURNAL OF VIROLOGY, vol. 77, no. 17, September 2003 (2003-09), pages 9183-9191, XP002258433 ISSN: 0022-538X (ISSN print) the whole document -----	1-51
P,X	GAGGAR ANUJ ET AL: "CD46 is a cellular receptor for group B adenoviruses." NATURE MEDICINE, vol. 9, no. 11, November 2003 (2003-11), pages 1408-1412, XP002298937 ISSN: 1078-8956 the whole document -----	1-51
P,X	WU EUGENE ET AL: "Membrane cofactor protein is a receptor for adenoviruses associated with epidemic keratoconjunctivitis" JOURNAL OF VIROLOGY, vol. 78, no. 8, April 2004 (2004-04), pages 3897-3905, XP008036328 ISSN: 0022-538X the whole document -----	1-51
P,X	SIRENA DOMINIQUE ET AL: "The human membrane cofactor CD46 is a receptor for species B adenovirus serotype 3" JOURNAL OF VIROLOGY, vol. 78, no. 9, May 2004 (2004-05), pages 4454-4462, XP008036348 ISSN: 0022-538X the whole document -----	1-51
P,X	WO 2004/037294 A (SPRANGERS MIEKE CAROLINE ; CRUCELL HOLLAND B V (NL); HAVENGA MENZO JAN) 6 May 2004 (2004-05-06) page 45, paragraph 1; example 9 -----	1-51
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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP2004/005762

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>LANTERI MARC B ET AL: "Inhibition of hyperacute transplant rejection by soluble proteins with the functional domains of CD46 and FcgammaRII" TRANSPLANTATION (BALTIMORE), vol. 69, no. 6, 27 March 2000 (2000-03-27), pages 1128-1136, XP008023496 ISSN: 0041-1337 the whole document</p> <p>-----</p>	
A	<p>MANCHESTER MARIANNE ET AL: "Measles virus and C3 binding sites are distinct on membrane cofactor protein (CD46)" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES, vol. 92, no. 6, 1995, pages 2303-2307, XP002258432 1995 ISSN: 0027-8424 the whole document</p> <p>-----</p>	
A	<p>KAWAKAMI YOSUKE ET AL: "Substitution of the adenovirus serotype 5 knob with a serotype 3 knob enhances multiple steps in virus replication." CANCER RESEARCH, vol. 63, no. 6, 15 March 2003 (2003-03-15), pages 1262-1269, XP002258434 ISSN: 0008-5472 (ISSN print) cited in the application the whole document</p> <p>-----</p>	
A	<p>MIYAZAWA N ET AL: "FIBER SWAP BETWEEN ADENOVIRUS SUBGROUPS B AND C ALTERS INTRACELLULAR TRAFFICKING OF ADENOVIRUS GENE TRANSFER VECTORS" JOURNAL OF VIROLOGY, THE AMERICAN SOCIETY FOR MICROBIOLOGY, US, vol. 73, no. 7, July 1999 (1999-07), pages 6056-6065, XP000957713 ISSN: 0022-538X the whole document</p> <p>-----</p>	
A	<p>WO 00/31285 A (INTROGENE BV) 2 June 2000 (2000-06-02) claims; example 1</p> <p>-----</p> <p style="text-align: center;">-/--</p>	

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International Application No  
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>ROGERS B E ET AL: "USE OF A NOVEL CROSS-LINKING METHOD TO MODIFY ADENOVIRUS TROPISM" GENE THERAPY, MACMILLAN PRESS LTD., BASINGSTOKE, GB, vol. 4, no. 12, 1 December 1997 (1997-12-01), pages 1387-1392, XP002069405 ISSN: 0969-7128 the whole document</p>	
A	<p>US 2002/132769 A1 (STEVENSON SUSAN C ET AL) 19 September 2002 (2002-09-19) claims; figure 1</p>	

## INTERNATIONAL SEARCH REPORT

International application No.  
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### Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
  
Although claim 50 is directed to a method of treatment of the human/animal body (Article 52(4) EPC), the search has been carried out and based on the alleged effects of the compound/composition.und/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box III Observations where unity of invention is lacking (Continuation of Item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/005762

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6060316	A	09-05-2000	NONE	
US 6524572	B1	25-02-2003	NONE	
WO 2004037294	A	06-05-2004	WO 2004037294 A2	06-05-2004
WO 0031285	A	02-06-2000	AU 770780 B2	04-03-2004
			AU 5960099 A	25-05-2000
			CA 2318492 A1	02-06-2000
			EP 1020529 A2	19-07-2000
			JP 2000157289 A	13-06-2000
			WO 0031285 A1	02-06-2000
			NO 995697 A	22-05-2000
			NZ 501214 A	01-02-2002
			ZA 9907213 A	22-05-2000
US 2002132769	A1	19-09-2002	AU 2059302 A	15-04-2002
			CA 2424668 A1	11-04-2002
			WO 0229072 A2	11-04-2002
			EP 1373501 A2	02-01-2004